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AUTHOR Brandt, Mary E.
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ABSTRACT

This paper argues for connecting two domains that have remained relatively isolated within their respective disciplines--research on thinking and the social origins of cognition. Both enterprises have become enmeshed in education. Neither have considered in any serious way the power and implications that an integrated perspective could contribute to education. The role that social activity plays in the teaching and learning of "good" thinking in the classroom is the fundamental issue that unites both. A description is given of the "Contextualized Apprenticeship Model" which was developed to address the problems of students who are unable to draw valid conclusions from what they read, unable to analyze problems, unable to apply "basic skills" to every day problems, and unable to develop a position on an issue. The theoretical foundation of the model rests on the works of L.S. Vygotsky, who asserted that the origins of all higher cognitive processes are first social. The model places teacher and student in an expert-novice apprentice relationship and emphasizes active intellectual interaction within social contexts. The processes involved in social interaction are eventually taken over and internalized by the student to form individual cognitive processes. (JD)

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GETTING SOCIAL ABOUT CRITICAL THINKING: POWER AND CONSTRAINTS OF APPRENTICESHIP

Mary E. Brandt
Department of Education
Educational Psychology, University of Hawaii

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Acknowledgements. The paper is based, in part, on a presentation made at the annual meeting of the American Educational Research Association, March 1989. I would like to thank the members of Hawaii Research on Thinking (HaRT) for serving the dual role of "collaborative expert" and "novice" during the development of these ideas. I am grateful for the need to negotiate meaning across five academic disciplines as well as for the scaffolding nutually provided.

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"Getting Social about Critical Thinking" argues for connecting two domains that have remained relatively isolated within their respective disciplines -- research on thinking and the social origins of cognition. Both enterprises have become enmeshed in education. Neither have considered in any serious way the power and implications that an integrated perspective could contribute to education. The role that social activity may play in the teaching and learning of "good" thinking in our classrooms is the fundamental issue that unites both.

As a cognitive psychologist working in education I have been following the Thinking Skills Movement that re-emerged in the early 1980's. Ironically, the current attention and national support for teaching thinking did not come, at least not initially, from affirming a philosophical belief such as "Good thinking is fundamental to every subject matter and skill area" or " Helping students use their minds more effectively is critical to democratic citizenship." These kinds of statements and educational talk were prevalent in the 1930's and 40's (Cuban, 1984; Presseisen, 1986). Then as now efforts were made to cultivate "good thinking" in our classrooms. Nothing much changed then, or at least not for long (Cuban, 1984) and it was back to business as usual.

Today, however, our current surge of interest in teaching thinking came from disillusionment, not from philosophical idealism. The country was dismayed at the results of any number of national reports and commissioned studies on education (e.g., National Assessment of Educational Progress, 1981, 1983; National Commission on Excellence in Education, 1983). The litany is familiar by now:

> Our students are unable to draw valid conclusions from what they read; they are unable to analyze math and science problems; they cannot apply "basic skills" to everyday problems (e.g., figuring out the change they should get back after ordering two items on a menu); they do a poor job at developing a position on an issue with supporting arguments; they are unable to write an adequate persuasive letter; nor can they understand a newspaper essay.

What is even more disheartening are the results of the just recently released Educational Testing Service report commissioned by NAEP. And, again, nothing much has changed. The study cited these findings to support its pessimistic tone:

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- In reading, 61% of 17 year olds cannot understand complicated written passages, including topics they study in school, textbooks or simple newspaper essays.
- In science, 59% of 17 year olds cannot apply their knowledge to interpret text and graphs or evaluate whether the design of an experiment is appropriate.
- In mathematics, 49 % of 17 year olds cannot solve problems using decimals, fractions, percents, basic geometry or algebra. (Honolulu Advertiser, February 15, 1989)

So despite the reform efforts to make thinking a prime focus of education, it's quite clear the thinking skills movement has not been successful (Nickerson, 1988), at least not yet. In fact, our educational system has been quite resistant "to making school the home of the mind", to quote Art Costa (1989).

Speculations about why this is so are wide ranging. They go from pointing at educational materials, such as drill and skill workbooks, to faulting broad educational and societal values. Paul (1985) suggests, in fact, that as a society we have not embraced or accepted the goal of developing good, independent thinkers or, at least, such a goal has not been part of our tradition for mass education. As Resnick (1987) has noted, the new challenge for education is to "...assume that all individuals, not just an elite, can become competent thinkers" (p. 7).

I would like to add my voice to such speculations by first suggesting another reason why the school has yet to become "a home for the mind"; a reason that falls somewhere between citing specific classroom practices and faulting broad societal values, and, second, offering not a solution actually, but a proposition or model to consider that we members of Hawaii Research on Thinking (HaRT) call the "Contextualized Apprenticeship Model. Finally I will highlight the constraints and power of this model.

Non-thinking in Schools: Why?

So let's look at one reason why the Thinking Skills Movement has not taken a firm hold in our classrooms. Certainly many issues about teaching thinking have been thoroughly debated - like what kinds of thinking to teach or whether teaching thinking should stand alone or be infused and so on. These are all curriculum type decisions. However, the area less thoroughly debated is instruction. So even if careful curriculum decisions about thinking are made, the actual teaching of thinking may fail. Failure, according to Robert Sternberg (February, 1987), has to do with the mental model of teaching and learning that seems to take over whenever we walk into a classroom. In his article "Teaching Critical Thinking: Eight Easy Ways to Fail Before You Begin", Sternberg leaves us with this message: Whatever program we choose, however many or few thinking skills we decide on, without giving up the didactic teaching-learning model of "telling" and the typical teacher-student discourse pattern, thinking, at least "good" thinking, will not happen.

This didactic model is not only prominent in our schools, as John Goodlad (1983) and others have so devastatingly documented, it is also a dominant teaching-learning school schema of many parents. As Levin (1989) has documented, parental enacting of such a school schema affects not only children's learning at home but also parent-child relations. Thus, it is important to ask what it takes to "give up" this dominant, didactic transmission model.

In his personal struggle to understand adherence to this model, Richard Paul (1989), describes it as an addiction: there are significant and substantial reasons for stopping. It is wasteful, ineffective, produces inert knowledge - quickly forgotten. But becoming conscious of an addiction and its harmful effects are not enough to stop doing it. It is extremely difficult to "give up". But the parallels with addiction end there. The problem with not teaching didactically is that we do not know what to do instead. No positive instructional approach automatically "kicks in", so to speak, to take its place. As part of my research I have observed a Thinking Skills program in action in intermediate level classrooms in Honolulu and have interviewed the teachers who have tried to "give up" didactic teaching. Unfortunately

what they had to guide them was only some general notion that teachers should talk less and students should take the lead. Obviously such an unformed mental schema of teaching and learning is too vague to guide either the teachers' or the students' actions and talk. Neither the teachers nor the students were particularly pleased with the resulting state of affairs. The students' critique centered on their dissatisfactions with "too much freedom" (indicating insufficient scaffolding) and "we never got anywhere" (suggesting little reflecting back on what had taken place).

Need for Alternative Models. What seems to be lacking, then, are well articulated alternatives to didactic instruction. Until this happens, teaching thinking will not take hold. Fortunately, some models are being developed such as our Contextualized Cognitive Apprenticeship model. I will describe its "prototype" form and refer you to research by Bayer (1989) and Jacobs (1989) for what it looks like in classrooms at the college and elementary level.

Model Development

In developing our model, two questions guided HaRT's multidisciplinary research group:

1. What would an expert-novice apprenticeship look like if its purpose is to develop thinking situated within an activity; and

2. What theory would guide the development of our apprenticeship model? I will briefly address each question before I describe our cognitive apprenticeship model.

Empirical Guide. This first question is an empirical one and directed us away from the anthropological descriptions of traditional job-type apprenticeships with its product-as-goal orientation. Instead, we looked to the developmental literature on mother-child interaction, particularly research on cognition and language development. You see, many mothers seem to have this uncanny knack of situating learning or contextualizing cognition. They place themselves and their children in real activities that have significance and meaning for both of them. For example, when a mother pulls out a picture book to read, she doesn't announce that a lesson, say in rhyming or concept naming, is going to take place. They sit down and "read" together. Learning is the by-product of such engagement. This learning in a natural context, for us, is a better empirical guide for both the "cognitive" and the "contextualized" features of our model than the job apprenticeship descriptions provided by Lave (cited in Collins, Seely Brown, & Newman, 1986) which Collins et al. (1986) have used. Although the distinctions between this job-type apprenticeship model and ours may be more a matter of degree than kind, they are nevertheless non-trivial.

Critical Distinctions. The two major distinctions between our model and Collins, et al. (1986) "traditional" apprenticeship model that I will describe deal with (1) learning sequence, i.e., how complex, cognitive learning takes place in time, and (2) the notion of ownership, i.e., the role of the teacher-expert in relation to the novice-student and the cognitive goal. (See Table 1.)

Insert Table 1 about here

Learning Sequence. In a traditional apprenticeship, such as tailoring or weaving, the steps for producing the product are ordinal and follow a set sequence. First you do this, then this... and so on. The novice may do the simplest part of any one of these steps, but to become the expert she must learn the ordered sequence to produce the product. To paraphrase Lunsford (1989), wouldn't it be nice if our students learned that way - one step, one step, one step and then, there they are, at the top of the cognitive ladder. If this were true, then a "task analysis" could list the steps and we would just need to follow them.

However, from all that we know about complex cognitive tasks, learning occurs in messy chunks with fits and starts. It is recursive, moving more in the form of a spiral than a straight line. For example, reflect back on how you wrote your last paper. The writing process does not lend itself to neat step-by-step, task analysis or to specifying ahead of time the exact end product. The same is true when we try to teach thinking.

Ownership and Transformation. The second distinction deals with ownership and transformation. In a typical job apprenticeship model the novice follows the expert's agenda; the focus is on the end product and the end product is determined by the expert. The expert "owns" the process and product.

Consider, for example, the study by Palinscar and Brown (1984) which Collins, et al. (1986) have used to illustrate their apprenticeship approach in education. The students were to learn the structure and form of typical, teacher-type questions, literal ones where the answers are directly in the text. Note in an excerpt from their study in Table 2 that the exact words to use were given to the child when he was unable to formulate a teacher-type question. The teacher initially modeled the question and had the child repeat it The teacher provided extrinsic rewards through praise and labeled these questions as "important". The teacher's scaffold technique is model-imitate-reinforce. After a few sessions the child is able to ask these literal teacher questions quite well. But such questions "belong" to the teacher even though they were spoken by the child. Their value and usefulness outside the culture of the school are doubtful.

In direct contrast are the instructional interactions that took place in Jacobs' study. Both the scaffold technique and type of questions are radically different. The children are scaffolded by the teacher into forming questions that have meaning and importance to **them**. These questions are far from the literal-factual type. They express wonderment and puzzlement; they motivate because they are questions about something the children really want to know more about and they motivate because they require reasoned opinions, not preset "right" answers already in front of them. The goal, often times, is knowing what is not known: "I don't know that. I'll have to find that out." are statements the children make upon completion of an instructional interaction. Instruction begins with sharing what is known. Movement is toward the unknown. Teacher scaffolding is via public and shared reflection on the efficacy of the questions - their purpose and function. The questions here belong to the children as does the goal. That is what I mean by ownership.

In the Palinscar and Brown study, the goal and agenda are predetermined and belong to the teacher-expert. The goal was to get the novice to produce a product that looks exactly like the expert's; a goal that is typical of job type apprenticeships (Greenfield, 1984). There is no transformation. It seems like the more traditional the culture - and school is a traditional culture - the more emphasis there is on maintaining, unchanged, the traditional ways. Thus, by learning how to ask themselves teacher-type questions, the children are learning the fixed role of "student" in the traditional culture of the school. In other words, the goal is enculturation as students, not thinkers; the agenda is the scope and sequence of facts established as the curricula, not inquiry into why these facts are important or how they came to be.

In contrast, a contextualized mother-child interaction places the child in a more negotiating stance: what the task activity is and what the outcome will look like are negotiable. In Adams' research (1987), for example, many of the three-year-olds would not accept a web-footed, flightless, marine animal, (namely a penguin) as a bird. The mothers had to negotiate, and they did - by using all kinds of verbal hedges like - "Well it's sort of like a bird, a strange looking bird for sure." Eventually, of course, we do want our children to classify penguins as birds. But in terms of critical thinking, we want our students to "go beyond the information given" in Bruner's classic sense. Transformation is desired. I will discuss the constraints on transformation shortly. (See also Brandt, 1987).

Theoretical Guide. Now let's turn to the second question about theory. Our model rests foresquare on Vygotsky. We took seriously his two key theoretical principles: one, that the origins of all higher cognitive processes are first social; and, two, his now famous Zone of Proximal Development or ZPD. Both of these principles have strong implications for psychology and education. We psychologists were told a long time ago that, "We are a funny lot, thinking that what's most interesting about the mind is inside the head ".' Well, we haven't changed very much. We continue to think that "cognitive stuff" (be it skills, processes, concepts, meaning) is **always** located in someone's head; never "out there" between

people. Now, however, Vygotsky's view of the development of higher mental functions suggests we look outside the head; that mental functioning occurs first between people in social interaction. It means that "dyads or groups as well as individuals ...think and remember (Wertsch, 1984, p. 2)" and it means that social moment-to-moment interactions create cognition. Only later is it internalized within one head or mind. This "in the head" location as THE place for cognitive things no longer has privileged status (Newman, Griffin, & Cole, 1984; Rogoff, 1982). That is why the didactic transmission approach is failing so many: the expert cannot simply give cognition away. The transfer must be interactive, social, and jointly created.

Prototype Apprenticeship Model. The protoype schematic of how this social transfer is accomplished is depicted in Figure 1. The Y axis represents

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Insert Figure 1 about here

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the boundaries of the Zone - with the Individual/Independent being the actual developmental level and movement toward the Joint/Collaborative being the cognitive level jointly created.[3]

On the X axis is the social transfer of cognition which goes from intrapsychological or within one individual (in this case the expert) to interpsychological or between the novice and expert, and back to the intra or within the now former novice.

This arch is the ZPD and its uneven jagged line illustrates the dynamics of the expert-novice relationship as well as the changing role the expert plays in scaffolding the novice at different moments in time. As you move from left to right, the overall scaffolding of the expert emerges and then disappears. Now picture this arch extending upward into a spiral with learning and instruction continually beginning with the novice's new internalized independent level.

Vygotsky only talked about half of this arch (the inter to intra) and then only in the sketchiest way. For educators concerned about higher order thinking skills, the role of the expert needs to be fully drawn. Wood, Bruner and Ross' (1976) one-on-one tutoring studies provide some detail. Bayer (1989) and Jacobs (1989) add to the sketch by describing how this prototype looks in typical classroom settings filled with many students.

Power and Constraints

Finally, I'll end by stressing the constraints and power of this neo-Vygotskian model and apprenticeship metaphor.

Constraints on Transformation. Transfer in this model is inherently social in two respects.[3] First, it is movement from within one individual to within another, so that the transfer process is constructed through social interactions and is socially mediated. Second, the thing which is transferred is also social. As Wertsch, Minick, and Arns (1984) state:

> ...the very processes or relationships that are involved in social interaction are eventually taken over and internalized by the child to form individual cognitive processes. This transition is the cornerstone of what Vygotsky termed the "general genetic law of cultural development" (p.157).

Thus, the type of transfer we are concerned with is quite different from the traditional transfer concept in psychology and education. Our current focus is not transfer across tasks or materials but transfer between people. How this social transfer is successfully accomplished is the crux of our research explorations.

This model of social transfer is not a copy theory. The novice does not simply internalize an isomorphic copy of the external social processes. As Vygotsky (1981) has stated, "it goes without saying that internalization transforms the process itself and changes its structure and functions (p.163)."[4] What existed externally between people becomes transformed as it goes underground. The constraints on the degree of transformation would vary depending on at least three broad factors:

1. The social expertise of the expert. How competent is the expert in socially and jointly externalizing the cognitive activity and meaning of the task? The expert must become self-conscious and take her internalized cognive history, so to speak, and make it public.

How well the expert is able to co-construct the social context which has meaning for the novice and thus entice the novice to become mentally engaged should also influence the extent of transformation. The less the expert takes into account the novice's perspective, the less likely the novice will become actively engaged and therefore the less likely any important transformation will take place. Repeating, copying, mimicking or disruption and non-participation are the likely outcomes. For example, Levin (1989) found that some mothers were very ineffective in creating an apprenticeship social context to assist their pre-school age children in learning school-type things, such as letter, numeral and color names. The result was frustration, anger, and consequently little learning, even of the mimicry type. Yet these same mothers with household-type tasks in which learning was contextualized were highly successful.

In my own experimental study on memory strategies (Brandt, 1986), part-Hawaiian children essentially chose to do a different task. I had not established what Wertsch (1984) calls "intersubjectivity". We did not share a common goal. I had set the agenda as well as the means of accomplishing it. Only after I decided to step out of my experimenter role and created a "real" social context with the children, did they begin to take part.

2. What our novice is like. We assume that prior experience and knowledge of the novice will influence the degree of compliance or acceptance of the expert's interpretive view. To use an example from Adams'(1987) research mentioned earlier, the mother and child dyads negotiated what to call certain animals during joint picture book reading. For one picture a child would accept "spotted dog" but would not call it "Dalmatian". This type of outcome transformation could be seen as incomplete transfer from the adult/expert perspective. It would be more appropriate, however, to view it as a riser in the scaffold. To use an adult example, a University teacher who was academically socialized during the Behaviorism era has both an emotional and cognitive investment in viewing learning in behavioristic terms. Scaffolding Vygotsky's social origins perspective for this individual is problematic. It appears as if this prior investment effectively blocks interactional engagement necessary for social transfer.

In the former example the novice-child's limited prior knowledge led to a negotiated interim outcome. In the latter case, the novice-adult's extensive prior knowledge and committment precluded transfer. The role that non-cognitive factors play in social transfer has yet to be explored.

3. The nature of the task. Of particular interest is the degree of cultural or personal committment the expert has in accomplishing a transfer which is an exact duplicate of a product, process or performance. The expert, as the embodiment of sociocultural knowledge, skills and values, would construct the social context in ways which would ensure that the tolerance level for change is not exceeded. Most teachers in our schools could serve as examples of how to constrain transformations within narrow limits. A more concrete example comes from Greenfield and Lave (1982) who studied the Zinacantecos in southern Mexico. They have a small set of specific weaving patterns which are taught to their young girls. Deviations from those patterns or "errors" during the assisted and joint production are prevented. The intent is not transformation or creativity. Creating new patterns is not the goal; preserving tradition is. Transformation tolerance would also be relatively low if the task were that of transmitting the oral history of a cultural group. John-Steiner (1985) has documented just the opposite in the artistic and scientific task domains in our Western culture. In those apprenticeships, the goal was generativity, to deviate from what came before. Thus the task alone is not the key consideration here. The task must be viewed as contextualized and to do so it must be embedded within cultural values and personal intent.

Power of the Model and Metaphor. Currently, our contextualized apprenticeship model serves us well for it allows for individual differences, respects cultural differences and permits sociocultural change. The apprenticeship metaphor appears to be a powerful one. It has provided us with an effective way of viewing learning and development which holds across the five disciplines represented in the HaRT project; across methods ranging from the interpretive

text to experimental design; across ages beginning with 18 month old infants to old age; and across cultures--European, American, and Pacific Islander. It recasts how learning and development occur and thus focuses our eyes on the shared and the social. It is an active model in the traditional contructivist sense while being absent its rigid stage approach. It also is a caring model in the feminine tradition of Noddings (1984).

In addition, the metaphor explicitly recognizes the domain specificity of knowledge on the part of both the expert and the novice. In other words, an expert in one task may become a novice in another. The important point, however, is not that this metaphor is in harmony with information processing type research with adults (cf.,Chase & Simon, 1973; Chi, Feltovich & Glaser, 1981; Larkin, McDermott, Simon & Simon, 1980) nor that is consonant with what Bransford, Sherwood, Vye and Rieser (1986) call the "new look" in developmental theory. The significant value of the metaphor is that it forces us to look at the learning activity in context; to focus on how the expert establishes and orchestrates a social context which fosters successful transfer, and to treat such orchestration as complex. It is precisely this sizable portion of the instructional relationship that is either neglected or missing in most research on expert problem-solving (cf., Chi, Bassok, Lewis, Reimann & Glaser, 1987) and in research on thinking skills and thinking skills programs (cf., Herrnstein, Nickerson, de Sanchez & Swets, 1986). For example, a recent report (Herrnstein, et.al., 1986) describing a massive study on teaching thinking skills in Venezuela had only one sentence dealing with expert-novice transactions:

> The teacher received continual feedback from the students; the typical student shifted from a somewhat passive classroom mode to much more active involvement with the flow of material more like a natural social interaction outside the classroom [emphasis added] (p. 1289).

Here we are only given a tantalizing glimpse of an apprenticeship situation. Admittedly, capturing and analyzing thick descriptions of the expert-novice dynamics are difficult. Yet such descriptions are crucial if we want to understand the social transfer process, i.e., how and why it has varying degrees of success.[5]

In fact, powerful understanding could result if two forces are combined. One force is embodied in the Thinking Skills Movement with its knowledge from cognitive psychology, cognitive science, philosophy and AI. It contains static knowledge about **how we currently think and what "good" thinking is within a domain"** but whose origins are unexplored. The other force is the one sketched by Vygotsky, elaborated on by developmental psychologists, and articulated in our apprenticeship model. This contains dynamic knowledge about **how we become "good" thinkers or how we came to think the way we do.** Finally, such joining of forces may help us deal with the seemingly intractable problem of "inert knowledge" (Whitehead, 1929), an all too common outcome of our institutionalized educational endeavors. Active knowledge, knowledge that has meaning, is precisely that which is created and internalized during the apprenticeship process. HaRT plans to continue exploring the implications and applications of our apprenticeship model within typical classroom settings.

Our research agenda is filled with questions. Most of them concern the limits or constraints of this social perspective on learning and development: When and where do social negotiations and social assistance help performance and internalization? How does the expert know when to construct a social context and when to leave the novice alone? How does observational learning and guided participation fit into this social perspective which presently relies heavily on speech and language as mechanisms of transfer? Are all higher level cognitive processes and concepts socially based, as Vygotsky contends, or are some better acquired by individual, independent efforts? These questions serve us well.

Notes

[1] The quote, made to Jerome Bruner by Clyde Kluckhohn, is cited in Bruner (1980).

[2] The joint creation of the ZPD means that the upper boundary, the potential development, does not reside solely within the student-novice; rather it is jointly determined by the skills and abilities of the expert (teacher or more capable peer) and the student-novice.

[3] For yet a third sense of the social nature, see Wertsch and Addison Stone (1985).

[4] According to Vygotsky (1962) the structure and function of speech is transformed as it goes underground and becomes internalized. The structure becomes abbreviated and idiosyncratic while the function becomes one of regulating, guiding and planning thought.

[5] Adams (1989) noted that there were large differences in student outcomes in the thinking skills program in the Venezuela project depending on the prowess of the teachers. How the most effective teachers conducted their instruction using the same materials would be most revealing to know.

Table 1

Distinctions between Apprenticeship Models

Distinction	Apprenticeship Models	
	Traditional Job-Type	Contextualized-Cognitive
1. Type of cognitive learning sequence	o Ordinal - Clear o Linear - Incremental	o Recursive - Messy o Spiral - Spurts
2. Ownership and Transformation	o Agenda predetermined o Expert's way of thinking is transformed as little as possible	o Agenda negotiated o Expert's way of thinking becomes uniquely the novice's

1. In Olson (1985, p. 385), Bruner quotes a conversation with Clyde Kluckhohn which took place more than 25 years ago.

Figure 1.

Table 2

Instructional Dialogue Between Teacher (T) and
Seventh Grade Child (C) (from Palincsar & Brown, 1984)

Day 1

TEXT: *The water moccasin, somewhat longer than the copperhead, is found in southeastern states. It lives in swampy regions. It belongs, as do also the copperhead and the rattlesnakes, to a group of poisonous snakes called pit vipers. They have pits between their eyes and their nostrils which, because they are sensitive to heat, help the snakes tell them when they are near a warm-blooded animal. Another name for the water moccasin is "cottonmouth." This name comes from the white lining of the snake's mouth.*

C: What is found in the southeastern snakes, also the copperhead, rattlesnakes, vipers--they have. I'm not doing this right.

T: All right. Do you want to know about pit vipers?

C: Yeah.

T: What would be a good question about the pit vipers that starts with the word "why?"

C: (No response)

T: How about, "Why are the snakes called pit vipers?"

C: Why do they want to know that they are called pit vipers?

T: Try it again.

C: Why do they, pit vipers in a pit?

T: How about, "Why do they call the snakes pit vipers?"

C: Why do they call the snakes pit vipers?

T: There you go! Good for you.

Day 11

TEXT: *One of the most interesting of the insect-eating plants is the Venus's flytrap. This plant lives in only one small area of the world--the coastal marshes of North and South Carolina. The Venus's flytrap doesn't look unusual. Its habits, however, make it truly a plant wonder.*

C: What is the most interesting of the insect eating plants, and where do the plants live at?

T: Two excellent questions! They are both clear and important questions. Ask us one at a time now.

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